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Let Us Now Praise Dauntless Men¹

G. J. WHERRETT,² M.D., M.R.C.P., F.R.C.P.

LET us now praise dauntless men. I know that what the Book of Ecclesiasticus says is: "Let us now praise famous men" that much of Sunday School remains with me. The men that we want to praise this afternoon were not all famous, however. I think that in their own eyes some of them were not even remarkable. But they were all *dauntless* men, and women. Who else would have attacked the leading cause of death when there was no proved cure? Who else would have undertaken to change the opinion of virtually the whole public?

It is hard to know where to start. Goethe wrote: "When roses bloom, they bloom everywhere", his way of saying that when the time for an idea has come it will flourish in more than one place. So it was that at the beginning of the century men in many places were speaking up, urging their fellows to take the first steps towards the conquest of tuberculosis.

The work of His Excellency, the Earl of Minto, was so well known and so much appreciated that in seconding the formal address in the House of Commons at the end of his term Mr. Robert Borden, later Sir Robert Borden and an honorary treasurer of our Association, said: "I refer particularly at this moment to his great earnestness in connection with the work of endeavouring to stamp out that dread disease of consumption, as it is commonly called."

The "earnestness" is evidenced by a great number of well-informed speeches on tuberculosis which were reported in considerable detail in the papers of the time. It is only fair to add that the Countess of Minto shared in this work. In the language of that day she "graced" many a gathering, the purpose of which was either to open a sanatorium or to raise funds that would help to make the opening of a sanatorium possible at some future time. I imagine, having seen

¹Presented at the 60th annual meeting of the Canadian Tuberculosis Association, Ottawa, June 1960.

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some of the yellowed newspaper files of that time, that there were some readers who skipped the long (though informative) speeches of her husband but whose attention might have been caught by the pictured elegance of Her Excellency's wide hat, furled sunshade, feather boa and other accessories of the impressive costume of that day. From the cutlines these readers learned that here were people who believed tuberculosis could be wiped out.

Meanwhile in Toronto, Dr. Brink tells me, Dr. Peter Bryce and Dr. C. A. Hodgetts were, through their reports to the Ontario Board of Health, rousing interest there. Medical men were interested and also that distinguished layman, Sir William Gage. His monument, well deserved, is the Gage Institute. The way that it serves the community contradicts that too-oft-quoted speech of Mark Antony's to the effect that it is the good which gets interred with a man's bones.

Toronto and Ottawa, fortunately, had no monopoly of men of vision. London had Sir Adam Beck who directed the fund-raising and other activities incidental to getting Queen Alexandra Sanatorium, now known as the Beck Memorial Sanatorium, built and operating.

Let us not forget the Rev. William Moore, a retired minister who took on the work of secretary of the CTA, fulfilling his duties at first without any remuneration. He did it for love of mankind. When the work of the national office, plus his sorties to organize local associations took his full time, and maybe more, he received a salary of \$1,000 a year. His were the pleas that united many communities to provide a sanatorium where those with tuberculosis could be treated. Gallant and courageous men and women carried the campaign on, for he could not be everywhere, but his was the inspiration which moved others.

His successor, Dr. George D. Porter, ranged even farther and wider—a real crusader. I don't know which contributed more to his success, the fact that he himself had triumphed over tuberculosis and so was proof that the disease was curable, or his imaginativeness, which enabled him to use any turn of events to catch the attention of the audience. If Dr. Porter's health had permitted him to be with us today I would have suggested that you ask him about the time in Fredericton when he managed to arrange a meeting on tuberculosis, complete with band, by way of the North Pole, as it were. The most exciting topic of the time was whether or not Cook had actually discovered the North Pole, or just became tired and planted a pole of his own. Dr. Porter listened to a contentious debate among the customers in a store in Fredericton and mentioned, as if casually, that he had recently heard Dr. Cook speak in New York. This called for a public meeting and a band. You may wonder what the link was between Cook's invasion of the Arctic and tuberculosis. Well, Dr. Porter joined them, stating that Cook's big complaint was lack of nourishing food, and poor nutrition is one of the things that fosters tuberculosis—and there you are. His Cook-engendered fame went before him. The mayor of Saint John saw to it that he got out a bigger audience than Fredericton's. St. Francis Xavier University extended him an invitation and so did the Presbyterian Synod.

When Dr. Porter left to take charge of a health service for the students of the University of Toronto his place was taken by Dr. R. E. Wodehouse. His

tenure of office coincided with great expansion in early diagnosis, and his drive and energy contributed greatly to spread of interest. Noteworthy too was the fact that he enlisted the Canadian Life Insurance Officers' Association in the work. It marked the beginning of the participation of Canadian life insurance companies in health programs. Dr. Wodehouse also organized the Sun Life Scholarship tours to and from Europe. These trips did two things. They united those who went on them into a corps and gave them a sense of having each other as companions-in-arms. They also marked the first step in trans-Atlantic scholarships. It was an important development.

Another happy warrior who rallied to the cause was Dr. J. H. Holbrook of Hamilton, who combined the duties of a physician with outstandingly practical and far-reaching notions of what one could do in a pinch. In the days when the Mountain Sanatorium was still in the tent stage his energy was invaluable. I never heard that he dug the well during the patients' rest period but it was about the only omission. During World War II, when we faced serious staff shortages, the City of Hamilton named him citizen of the year. In replying he said he didn't know what he had done to deserve it—unless it was to go down and help in the laundry. As a matter of fact he had done that very thing.

Other names throng the canvas of those early days—courtly Dr. Chas. Parfitt, Dr. Jabez Elliott, a stickler for documentation for which we have had reason to be profoundly thankful, as well as scholarly Dr. Dobbie of Weston and Dr. "Forthright" Kendal of Gravenhurst. Then, down in the Maritimes, Dr. Hugh Farris—irascible, uncompromising, but "Mr. Valiant for Truth", and a great factor in the campaign in early days. He had had a rough time with tuberculosis himself and was a walking witness to the fact that one could survive and still do a good day's work.

When I think of other victors over tuberculosis who pressed the Maritimes campaign with the zeal that comes of personal experience I think too of Dr. Collins and Dr. Carmichael. Dare I add in a whisper that Dr. Carmichael was lured away by Upper Canada to the Department of Civil Re-establishment and later became superintendent of the Royal Ottawa Sanatorium?

Also in New Brunswick was Dr. Wm. F. Roberts, the first Minister of Health in the British Empire, a constant source of stimulation and inspiration—if one didn't mind operating his second-hand Ford or X-raying the hoofs of the horses of his friends. One of the exciting but less clinical episodes of my career took place when I undertook to X-ray the hoof of a valuable horse. The machines of those days not having the safety devices we have now, I set fire to the barn.

In Nova Scotia they had Dr. A. F. Miller, a man who despite frail health carried on in charge of an encampment of tents which, due to his energy and the incisiveness with which he approached the government, became the first provincial sanatorium in Canada. Dr. Miller still remembers the night when all the tents blew down in a storm and his patients had to be rescued from flapping canvas.

There was quite a story-book quality to treatment in those days.

Newfoundland had not thrown in its lot with us politically at that time, but in matters of health we were already in sympathy. Dr. H. Rendall is remembered for the great effort expended in getting the first sanatorium built and

much later Mr. Gordon Higgins worked vigorously with Ted Meany to get the Newfoundland Tuberculosis Association launched.

To the cradle of Confederation, Prince Edward Island, came Dr. P. A. Creelman. His life work was fighting tuberculosis in *The Island*, which he dearly loved. He had the unfailing support of Dr. W. J. P. MacMillan, Minister of Health, Premier and Leader of the Opposition, and always a believer in public health measures. In those early days he had a tireless helper in Miss Mona Wilson of the Red Cross, now Supervisor of Public Health Nurses. She could wring dollars from Sir Charles Dalton but nearly wrecked her accomplishment at the bridge table by trumping his ace. I am told that for years now she has just said quietly that she does not play bridge—such are the long-term effects of enthusiasm in the campaign against tuberculosis.

Miss Wilson was one of many women before whose energy and devotion public apathy and private laziness had to give way. Hamilton had Mrs. Lyle and Mrs. Southam. Calgary had the indefatigable Mrs. Carson, sister of another staunch pioneer Dr. Coutts of Kitchener.

Toronto's first tuberculosis nurse was one who tackled her work in the true spirit of Florence Nightingale and had a disposition to dispense with the red tape. Miss Janet Neilson had instructions to extend her services to patients within Toronto's city limits but among those needing services were several patients who were a suspiciously long walk from the streetcar line. Long after, Miss Neilson confessed that she had solved this problem by never learning where the boundaries of her home city were.

I see I have been side-tracked from my roll call of the provinces . . . well, better men than I have been lured off course by women. Let me get back.

Quebec had its full share of distinguished men. We remember with affection and esteem Dr. Jarry, whose monument is the Bruchesi Institute which has saved thousands of lives. Dr. Byers, Dr. Harding, Dr. Couillard, Dr. Dube—years ago they made speeches about tuberculosis and alcoholism which sound like those being made currently. Dr. Leclerc, Dr. Simard and Dr. Georges Gregoire are remembered too with affection.

The wild west had some giants. There was Dr. David Stewart of Ninette. There was a time when it was noted that proportionately more men in tuberculosis work came from the University of Manitoba than from any other school of medicine. That was what Dr. Stewart's influence did. He was a dedicated man and to such men those with great spirits rally. Among his disciples was Dr. Fred Jackson who always said that it was a train ride with Dr. Stewart that influenced him to enter the field of public health, to which he made such a great contribution. We must not forget Mr. John McEachern, for many years chairman of the Sanatorium Board of Manitoba.

Dr. George Ferguson, whose influence and reputation has spread to every continent, happily is with us. I know he would never forgive me if I forgot to mention the splendid work of Dr. M. M. Seymour, Deputy Minister of Health, or a singularly devoted group of laymen—Mr. A. B. Cook, Mr. Peter McAra and Mr. E. G. Hingley.

Alberta had Dr. A. H. Baker, first superintendent of the Central Alberta Sanatorium, now fittingly renamed the Baker Memorial Sanatorium.

The tower of strength in British Columbia was Dr. C. H. Fagan who never missed a meeting of the Canadian Tuberculosis Association and never failed to get into the record his conviction that the treatment of tuberculosis should be tax supported. Nor would we forget Dr. Vrooman first superintendent at Tranquille, and Dr. Lamb first travelling tuberculosis officer.

Having reached the west coast I suppose I had better stop—rather than retrace my steps and pay tribute to others I remember—for they were many. It was hard to know where to stop in so great a company. I made an artificial barrier of those who were gone or had retired, for had I included all those still active, and doing important work, this afternoon's session would have gone on indefinitely. But there are three others that must not be forgotten. Dr. Wodehouse would want me to mention the ready assistance from Dr. John Amyot, Deputy Minister of Pensions and Health during his term of office. I will always remember the unfailing advice and wise counsel and friendship of Dr. Grant Fleming of McGill from the time I came to Ottawa until his death.

Dr. Moore will remember the assistance of Dr. Chas. Camsell, Deputy Minister of Mines and Resources, in getting the present excellent tuberculosis program for the Indians under way.

Even had I included my contemporaries, the list would have been far from complete. The omission would have run to hundreds—perhaps to thousands—for how shall we weigh the effort that someone made in addition to an already heavy load—the hardworked person who long ago gave up all the spare time he or she had to a tag day to raise funds, or the person who without much to spare gave up something to make a contribution to a new sanatorium, or the thousands who worked tirelessly and anonymously in Christmas Seal work, or the people who took on the job of getting an audience for the speaker who was coming to incite them to undertake the expense of building a sanatorium? All over Canada the tuberculosis movement has depended on someone assuming an extra burden, big or small.

I cannot name them all. I cannot list their good deeds for they are countless. I began by paraphrasing a verse from the Apocrypha. My last word comes from the same source. It is this:

"The noble acts which he did, and his greatness, they are not written; for they were very many."

Tularemia of Muskrats in Eastern Ontario

J. DITCHFIELD,¹ D.V.M., E. B. MEADS,² D.V.M., D.V.P.H.
and R. J. JULIAN,² D.V.M.

TULAREMIA was first described by McCoy (1) in 1911 as a disease of small rodents. Wherry and Lamb (2) implicated the causative agent, *Bacterium tularensis*, as a pathogen of man in 1914. The epic work of Francis (3, 4) exposed this disease for what it is—a true zoonosis, primarily a disease of rodents (principally the rabbit), and secondarily a disease of man.

In the past few years, many reports of the disease among aquatic mammals have been published. In addition, three major reports of water-borne tularemia have appeared (5, 6, 7, 8). These two facts have established that besides the classical "rabbit fever", outbreaks of the disease in man may be due to primary infection in muskrats or beaver, and may be spread by contamination of natural waters.

The disease in Canada has been reported in every province with over 150 cases recorded up to 1959 (9). Greenberg and Blake (10) have presented serological evidence that the disease is endemic in certain regions of the country, principally in Northern Manitoba and in the James Bay district. Banfield (8) reported an outbreak of tularemia among aquatic mammals in Watertown Lakes National Park, Alberta. Contamination of streams occurred during this epizootic, and *Pasteurella tularensis* was recovered from water samples.

It is the purpose of this paper to detail a second apparent water-borne epizootic in Canada which occurred in a fairly heavily populated area of Ontario.

Location of Epizootic

The epizootic of tularemia occurred among muskrats (*Ondatra zibethica*) of the Castor swamp in Dundas county. This swamp lies in the north-east corner of the county, approximately 35 miles south of Ottawa (Figure 1). The population density of Dundas county is high, 42 persons per square mile. Of the total area of 245,760 acres, approximately 32,000 acres is swamp land (commonly referred to as "muck" land). The largest part of the muck land, called the Castor swamp, lies north and west of the village of Winchester. At one time it was an abandoned bombing range, but now it is the home of a large wild-life population, including muskrats, beaver, rabbits and other small rodents. The natural vegetation in this area consists of larch, black alder, and black spruce. The swamp is drained in the north by the South Branch of the Castor River and Silver Creek; in the south by the East Castor River.

¹Extension Group, Ontario Veterinary College, Guelph, Ont.

²Extension Group, Regional Veterinary Laboratory, Kemptville, Ont.

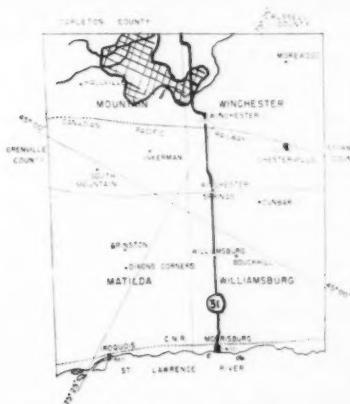


FIG. 1. Location of the Castor Swamp in Dundas County.

Most of the land surrounding the swamp is flat and poorly drained. Numerous drainage ditches run through this land and provide accommodation for large numbers of muskrats.

History of Epizootic

For several years, the rodent population of Eastern Ontario has increased until it appeared to reach a peak in the spring of 1960. It was noticed, however, that many muskrats were dying prior to and during the trapping season in April. A large number of sick rats were captured very easily by trappers. Several dead muskrats and two cats which had died five days after eating the viscera of trapped muskrats were presented to our Regional Laboratory in Kemptville for post-mortem examination.

Laboratory Findings

The dead muskrats and cats showed typical white necrotic foci in the liver and spleen. From these organs *Pasteurella tularensis* was recovered in pure culture. Application of emulsions of the spleen to the shaved skin of guinea pigs resulted in death in 8 days. *Pasteurella tularensis* was recovered in pure culture from contiguous lymph nodes, blood, spleen, and liver of these animals. The organism was identified by morphology: small, Gram negative rods approximately 0.2 microns in size; cultural features; grey viscid colonies in four days on cystine heart blood agar but no growth on plain blood agar; and slide agglutination with known *Pasteurella tularensis* antiserum.¹ The organism was subjected to virulence tests as outlined by Owen, Bell, Larson, and Ormsbee (11). At the present time, these results are not yet completed.

Due to the public health significance of the above findings, a limited survey of water and wild-life in the area was undertaken.

Survey Results and Observations

Twenty-two separate water samples and twenty-five rabbits were collected from the region of the Castor swamp and from the streams draining the

¹Kindly supplied by Mr. Marion Magus, Special Bacteriology, Central Laboratories, Ontario Department of Health, Toronto.

swamp. The rabbits were brushed for ectoparasites and approximately 600 ticks (*Haemaphysalis leporis-palustris*) were collected.

The water samples were subjected to a Millipore filter² technique. The water was passed through a filter of pore size 0.45 microns to remove contaminating organisms. The filtrate was then passed through a pore of 0.10 microns. It was felt that this filter size would trap any *Pasteurella tularensis* organisms which might be present in the samples. By using this method, three of the twenty-two water samples were found positive for *Pasteurella tularensis* (Figure 2).

The rabbits were shot and bled immediately for serum. The spleens and livers were ground with saline and sterilized in flowing steam for 30 minutes. The emulsion was centrifuged at 3000 r.p.m. for 30 minutes and the supernatant used as an antigen to perform Larson's precipitation test (12).

Two rabbits had a serological titre against *Pasteurella tularensis* of 1:8. One rabbit had a titre of 1:256. This rabbit had a positive Larson test but all other specimens were negative.

The collected ticks were divided into three pools, emulsified and injected into guinea pigs. All pools produced tularemia in the injected animals.

The strains recovered from the water samples were subjected to virulence studies as outlined for the original strain.

While collection of the specimens was being carried out it was noticed that tabanid flies, mosquitoes, and black flies were numerous in this area.

Discussion

Isolation of *Pasteurella tularensis* from water would presuppose that this epizootic was water-borne, as has been described by Parker (6) and Banfield (8). The implication of this from a public health standpoint is self-evident, especially in such a populated area.

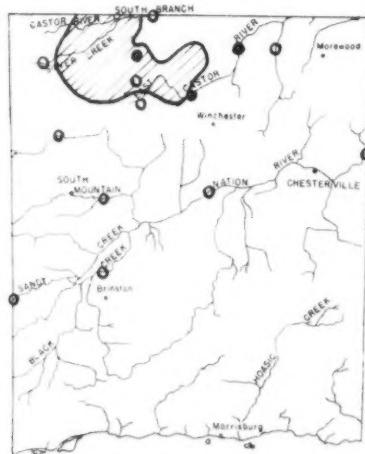


FIG. 2. The natural drainage of Dundas County, and the areas of sampling. Positive water samples ●. Negative water samples ○.

²Millipore Filter Corp., Watertown, Mass., U.S.A.

Most of the other factors which lead to human infection are present in the area. Although the rabbit tick seldom, if ever, attacks man, it has been postulated that this ectoparasite may play a part in animal to man transmission by attacking several species of ground-frequenting birds, especially the sparrow. *Haemaphysalis leporis-palustris* does, however, propagate the disease among wild animals (13).

Birds may transmit tularemia by being mechanical vectors, during the predator-prey relationship; and because of host-parasites relationship (14). Due to the large numbers of hawks, crows, and sparrows in the Castor swamp, dissemination of the disease by this method would appear possible.

The large number of tabanid flies in the area plus their habit of long flights would place this vector in an important position if the disease is transmitted to man.

In the past, investigation of water-borne tularemia has relied upon concentration of water by centrifugation and then injection into guinea pigs. The Millipore filter technique as employed in this study would appear to hold promise as a valuable tool in such investigations. At the present time, studies are being undertaken to determine how critical such a process is. If the technique is fairly critical quantitatively, large volumes of water could be processed rapidly, safely, and economically.

The question whether rabbits can act as "recovered" carriers of tularemia is still unanswered. The titre of 1:8 which appeared in two of the twenty-five rabbits sampled would appear to be due to a "carrier" state; the titre of 1:256 would appear to be due to active infection, especially since the Larson test was positive in this animal.

SUMMARY

- (1) Tularemia was discovered among the muskrat (*Ondatra zibethica*) in the Castor swamp, approximately 35 miles south-east of Ottawa.
- (2) *Pasteurella tularensis* was recovered by a Millipore filter technique from 3 out of 22 water samples collected from streams draining the swamp.
- (3) *Pasteurella tularensis* was also recovered from pools of the rabbit tick (*H. leporis-palustris*) collected in the area.
- (4) Most of the common vectors for transmission of the disease from animals to man are present in the Castor swamp region.

REFERENCES

1. McCoy, G. W.: Public Health Bulletin, 1911, No. 43.
2. Wherry, W. B. and Lamb, B. H.: J. Am. Med. Ass. 1914, 63: 204.
3. Francis, Edward: Tularemia, A New Disease of Man, USPHS Hygiene Lab. Bull., 1922, 130.
4. Francis, Edward: Public Health Rep. 1937, 52: 103.
5. Jellison, W. L., Kohls, G. M., Butler, W. J., Weaver, J. A.: Am. J. Hyg., 1942, 36: 168.
6. Parker, R. R., Steinhaus, E. A., Kohls, G. M., and Jellison, W. L.: National Institute of Health Bull., Washington, 1951, No. 193.
7. Jellison, W. L., et al.: Rocky Mountain Med. J., 1951, August.
8. Banfield, A. W. F.: Canadian J. Zoo., 1954, 32: 139.
9. Dominion Bureau of Statistics of Annual Reports of Notifiable Diseases.
10. Greenberg, L. and Blake, J. D.: C. M. A. J. 1957, 77: 211.
11. Owen, C. R., Bell, J. F., Larson, C. L., and Ormsbee, R. A.: J. of Inf. Dis. 1955, 97: 167.
12. Larson, C. L.: Jour. Immunology, 1950, 66: 349.
13. Steinhaus, E. A.: Insect Microbiology, Comstock Publishing Co. Inc., New York, 1946.
14. Bushman, J. B.: In: Symposium on Ecology of Disease Transmission in Native Animals, Dugway Proving Ground, Utah, April, 1955.

ADDENDUM

In 1943 Francis and Felton (1) proposed that the most accurate measure of virulence of *Pasteurella tularensis* was the susceptibility of mice, guinea pigs, and rabbits. Owen, Bell, Larson, and Ormsbee (2) subjected this proposal to critical analysis and concurred that virulence could be based on such a test. One to ten organisms of maximum virulence are sufficient to kill mice, guinea pigs, and rabbits. Loss of virulence first shows itself in the failure of rabbits to die after the injection of such a small number of organisms.

Our strains recovered from muskrats, water, and rabbit ticks (3) were subjected to these tests.* One to ten organisms were sufficient to kill mice and guinea pigs. A massive dose (5,000,000 organisms) was required to kill rabbits. In this regard our strains appear to conform to other strains recovered from water and aquatic mammals (4).

REFERENCES

1. Francis, E. E. and Felton, L. D.: Pub. Health Rep., 1943, 57: 44.
2. Owen, C. R., Bell, J. F., Larson, C. L., and Ormsbee, R. A.: J. Inf. Dis., 1955, 97: 167.
3. Ditchfield, J., Meads, E. B., and Julian, R. J.: This Journal.
4. Owen, C. R.: Personal Communication.

*Kindly performed by Dr. Cora Rust Owen, National Institute of Allergy and Infectious Diseases, Rocky Mountain Laboratory, Hamilton, Montana.

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The Selection of Diagnostic Groups For Hospital Statistics¹

GORDON H. JOSIE², Sc.D., M.P.H.

The Department of National Health and Welfare's Advisory Committee on Hospital Insurance and Diagnostic Services has set up a working party on admission and discharge forms. In considering the items that are to appear on admission and discharge forms and the basic uniform tabulations that might be derived from them, the working party reviewed the problem of a suitable list of diagnostic categories for hospital morbidity tabulations. The matter is still under study, and further work in the next few months should result in useful recommendations. My purpose is to discuss the criteria for selection of diagnostic groups for presentation and analysis of hospital morbidity statistics.

THE USES OF HOSPITAL MORBIDITY STATISTICS

The basic criterion of selection is, of course, the purpose the statistics are intended to serve. May I remind you of some uses of hospital statistics. These include their use:

- (1) *As a measure of sickness* in a community for planning purposes;
- (2) *For epidemiological studies*, that is, studies of the etiology, development and outcome of particular diseases. Difficulties in these applications include estimation of the population served or "at risk", the bias introduced by the fact that cases hospitalized are selected, and problems of multiple diagnoses and of multiple admissions.
- (3) *In clinical trials or treatment comparisons*, that is, studies of the efficacy of treatment. Here the problems are those of specification of precise diagnoses and the selection and follow-up of cases and controls. Routine hospital data will be of limited use, but may help to give some idea of sample size available and in selection and allocation of cases.
- (4) *For administrative purposes* to answer such questions as:
 - What is the volume of ill health in terms of numbers affected by various kinds of hospitalized sickness?
 - What are the major types and diagnostic categories of hospitalized sickness, expressed in terms of frequency, duration, severity, disability, or on the other hand, in terms of the need for and use of hospital services?
 - Are the patients receiving the kind of care they need and is it being provided efficiently?
 - Have the people generally reasonable access to hospital care?

CRITERIA FOR SELECTION

There are, it seems to me, five criteria for selection.

The first is, as I have mentioned, *the purpose the statistics are intended to serve*. A corollary of this criterion is the assessment of the accuracy of the data in relation to the use envisaged.

¹Presented at the 50th annual meeting of the Canadian Public Health Association, Halifax, N.S., May 31-June 3, 1960.

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Second is *the frequency and duration of the disease*, expressed in both absolute and relative terms. Frequency may be the number of cases, i.e., admissions, discharges, deaths, separations or patients under care during the study interval. Duration will likely be in terms of patient days since admission, but for some workload purposes patient days during the year may be the appropriate measure.

Third, *the importance of the disease* (a) *to the patient*, in terms of disability or impairment or possible fatal outcome or residual defect. Consideration might also be given to the possibilities of rehabilitation and of recurrence of the condition, and (b) *to the hospital*, in terms of the services provided; these would include operations, diagnostic services and staff.

Fourth, *characteristics of the patient*, particularly sex and age groups affected.

Fifth, *practical considerations*, including the mode of tabulation, presentation and analysis, facilities available for data processing, the format of presentation and the audience anticipated.

INTERNATIONAL STATISTICAL CLASSIFICATION AS THE BASIC CLASSIFICATION SYSTEM

For our purposes I shall assume that the diagnosis is shown on the hospital records in acceptable medical terms, that these are classified and coded according to the International Statistical Classification of Diseases, Injuries and Causes of Death, and that at least the three digit code is used. The classification is not as systematic and uniform as one might like; both etiology and site are used as axes of classification along with special sections for mental diseases, complications of pregnancy and childbirth, certain diseases of early infancy, senility, and ill defined conditions, including symptoms. Finally, there is a dual classification of injuries according to external cause and nature of injury.

As this I.S.C. system is the classification on which the tabulation programs will likely be based, we might look briefly at its constitution. The 16 disease classes are divided into 74 groups, identified by the first two digits of the basic three digit code. The nature of injury classification of accidents adds another 19 groups and the external cause classification 16 groups giving a total of 109 groups. In addition there is a supplementary classification of special admissions, livebirths, and stillbirths, with four groups and a classification of inoculations and impairments having five sub-groups.

The 16 disease classes have a total of 612 specific three digit diseases or causes, and there are an additional 189 categories in the N code and 153 in the E code giving 954 three digit categories. The fourth digit, which subdivides some of these categories but is not regarded as an essential part of the code, adds another 671 sub-groups. We are therefore dealing with a system of 17 classes with about 100 groups and nearly 1,000 sub-groups or specific diseases, plus an additional 700 4th digit sub-categories, for a total of approximately 1,500 specific entities which may be identified by the coding system.

DIAGNOSTIC GROUPING SYSTEMS PROPOSED OR IN USE

Obviously, with a classification system of this detail and specificity various groupings may be used, and in fact a number have been recommended or applied. The World Health Organization has proposed two lists for hospital statistics, one consisting of 300 categories and the other of 75. In tabulations

of hospital statistics carried out by the British Columbia Hospital Insurance Commission a classification of 245 categories was used. The Saskatchewan Hospital Services Plan has used the I.S.C. Detailed List and the C list of 50 groups. In the study of "Morbidity in the Municipal Hospitals in the City of New York" a system of about 200 categories was developed, and Collins, Trantham and Lehmann in a U.S. Public Health Service Monograph (No. 25) "Sickness Experience in Selected Areas of the United States" used classifications numbering in some instances 38 categories and in others 103.

The U.S. Department of Health, Education and Welfare has recently adapted the international classification of diseases for the indexing of hospital records and has produced a list of 160 categories. In reports on the Danish Hospital Survey lists of 99 and 33 groups were used.

There is no uniformity, and in fact quite a diversity in the composition as well as in the length of the lists used by different authorities. Perhaps this is not surprising since the systems were applied to different objectives and to problems and areas of varying extent and complexity. The working party has already given some attention to comparison of these various lists, and further work is in progress.

GROUPS VERSUS SPECIFIC DIAGNOSES (2 DIGIT VERSUS 3 OR 4 DIGIT CATEGORIES)

We have been fortunate in having available for study some tabulations resulting from (1) the Ontario Hospital Survey of 1951—645,313 discharges; (2) a tabulation of the Ontario Hospital Services Commission for the first eleven months of 1959—865,827 discharges and (3) a detailed tabulation of the Saskatchewan Hospital Services Plan for 1957—173,555 cases. (The Ontario lists include the category "single liveborn infant without mention of immaturity" (Y20) but this was not shown on the Saskatchewan tabulation.) These tabulations have given us an extensive body of data for analysis and comparison.

The Ontario lists we prepared went down to diagnoses with frequencies of about 1,000 cases or 0.1% of the total cases and the Saskatchewan list to 500 cases or about 0.3%. On this basis there were 110 categories in the 1951 Ontario list and altogether these accounted for 81% of the cases and 73% of the days. The 1959 Ontario list had 138 groups involving 83% of the cases and 77% of the days. The 1957 Saskatchewan list was less extensive consisting of 67 categories accounting for 67% of the cases and about 60% of the days.

The top ten diagnostic categories (excl. Y20) in terms of frequency of cases account for about one-third of the cases and nearly one-quarter of the patient days. The top twenty categories in Ontario account for about 40% of the cases and about 30% of the days. The leading 25 diagnostic categories in Ontario account for about 44% and 35% of cases and days, respectively. The top fifty categories account for about 53% of the cases and 45% of the days. Except for the first ten categories the Saskatchewan percentages are somewhat higher than those for Ontario.

There is good agreement among the three lists in the top ten categories in order of case frequency, after that there is more diversity although we find only about 33 different diagnoses on the three lists of 20 leading causes. Most

of the top ten three digit categories each account for about one to two per cent of the cases, except for the first one which is "Delivery without mention of complication"; it is responsible for about 15% of the Ontario cases and 12% in Saskatchewan. The first ten groups in order on the Ontario 1959 list are the following:

- 660—Delivery without mention of complication
- Y20—Single liveborn infant without mention of immaturity
- 510—Hypertrophy of tonsils and adenoids
- 420—Arteriosclerotic heart disease, including coronary disease
- 560—Hernia of abdominal cavity without mention of obstruction
- 650—Abortion without mention of sepsis or toxemia
- 648—Other complications arising from pregnancy
- 550—Acute appendicitis
- 491—Broncho-pneumonia
- 571—Gastro-enteritis and colitis, except ulcerative, age four weeks and over

Even in this small list there are several points of interest particularly the presence of "other" categories. These would seem to be of relatively limited usefulness taken out of context. The other point is the presence of only one member of a small group such as appendicitis (550-553) or pneumonia (490-493). This raises the whole question of the usefulness of specific categories which are essentially non-specific in nature versus broader but more meaningful groups.

Thus, in addition to "acute appendicitis" (550) in the top ten causes of hospitalization for all three tabulations, we find "appendicitis unqualified" (551) and "other appendicitis" (552) also among the leading causes for the Ontario 1951 list. The question here is as to the diagnostic distinction between acute and unqualified cases of appendicitis. Are the latter all non-acute or are some unqualified cases just not so precisely diagnosed or recorded? Among the lists we examined the distinction is preserved only in the WHO 300 list and in one British Columbia tabulation. The New York City study shows only "acute appendicitis" and "other and unspecified appendicitis." The latter includes "other diseases of the appendix" (553) the remaining category in the appendicitis group. This New York dichotomy would seem to be a reasonable approach for most purposes.

The diagnosis "hypertrophy of tonsils and adenoids" (510) is a common one; under what circumstances would we want data about this cause without the related diagnosis, acute tonsillitis (473)?

Of what use are data about "other complications of pregnancy" (648) without some indication of similar data for the specific complications in the group (640-649). Incidentally we note that "pregnancy associated with other conditions" (649) is not to be used for primary classification. The increasing frequency of multiple diagnoses further complicates our problem. So far, grouping has been considered with respect to the principal or primary diagnosis, but for case finding we would obviously be interested in all cases of a given diagnosis whether specified as the primary cause for hospitalization or not.

Only three diagnoses were specified in all lists, "diabetes" (260), "delivery without mention of complication" (660) and "disorders of menstruation" (634).

Nearly all diagnoses appeared on several lists, particularly the larger ones. The two digit groups seemed to be more common than three digit diagnoses.

Briefly then, one has the choice of: (1) a selected list of specific three digit diagnoses on the basis of frequency or other indices of relative importance. This has the difficulty of "other" categories and incomplete logical groups, (2) a selected list of two digit categories. This has the advantage of meaningful groups but would eliminate data respecting the leading causes, (3) a combination of selected two and three digit categories with, if necessary, some fourth digit entities included.

This third possibility seems the most likely to be successful, but the selection will vary for different purposes. For routine tabulations some agreement should be possible on a uniform list and in fact this has been reached in some instances as we have seen, but without general applicability so far.

SUMMARY

It is clear from the foregoing remarks that the problem of arriving at a selected list of diagnostic groups for hospital statistics is complex and depends largely on the purposes to which these statistics are to be put. Criteria for selection are of varying relative significance for different projects or purposes. While it may be possible to arrive at an agreed list of diagnostic groups for general administrative requirements it is unlikely that this will meet all needs for morbidity statistics.

A valuable if not essential preliminary to the preparation of lists for specific uses would be a review of the cases (and preferably days) tabulated by the full four-digit code of the International Classification. If these could also be distributed by sex and age groups so much the better, but a simple case count would be of great assistance in group selection.

Finally, for most morbidity statistics purposes it is suggested that the 93 groups (74 disease plus 19 nature of injury) of the International Statistical Classification (identified by the first two digits) should form the basis of the diagnostic list. This should be supplemented, however, by the addition of the top 10 or so specific three digit diagnoses, using the criterion of frequency of cases. Thus we would have a list of about 100 categories comprehensive enough to include all groups of importance *in toto* plus the leading specific causes. The number of leading causes could be increased by sacrificing some of the two digit categories which did not meet some minimum case count. This list could be adapted to other purposes by additions and deletions based on the appropriate criteria for selection.

REFERENCES

- Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death.* Vol. I. (Seventh Revision, 1955). World Health Organization, Geneva, 1957.
- International Classification of Diseases.* Adapted for Indexing of Hospital Records and Operation Classification. U.S. Department of Health, Education, and Welfare, Public Health Service Publication No. 719. Government Printing Office, Washington, D.C. (December, 1959).
- Sickness Experience in Selected Areas of the United States.* Selwyn D. Collins, Katharine S. Trantham, and Josephine L. Lehmann. U.S. Department of Health, Education, and Welfare. Public Health Monograph No. 25, Government Printing Office, Washington, D.C. 1955.
- Morbidity in the Municipal Hospitals of the City of New York.* Marta Fraenkel and Carl L. Erhardt. Russell Sage Foundation, New York. 1955.

- The Hospital Survey of Denmark.* Published by the Committee on the Danish National Morbidity Survey. Munksgaard, Copenhagen, 1959.
- Annual Report of the Saskatchewan Hospital Services Plan, 1958.* Department of Public Health, Regina, Saskatchewan, 1959.
- A Survey on the Causes of Illness and Deaths Among Residents of British Columbia.* Prepared by the Research Division, British Columbia Hospital Insurance Service, April, 1953 (Mimeo.).
- Morbidity in British Columbia Hospitals.* Covering the Period February 1 to October 31, 1953. Prepared by Naomi I. Grigg and Gloria E. Whalen. Research Division, British Columbia Hospital Insurance Service. Victoria, B.C., 1955 (Mimeo.).
- Hospital Morbidity Study.* Province of Ontario. Report to the Minister of Health, 1954.
- Condensed Lists of 300 and of 75 Groups for Hospital In-patients.* (Drafts). Suggested condensations of I.S.C. Detailed List in W.H.O. document WHO/H.S./Nat.Com./24 (Mimeo.), were derived from experience in England and Wales, see *Hospital Morbidity Statistics*, Studies on Medical and Population Subjects No. 4, General Register Office, London, 1951.

HIGHLIGHTS OF THE 13TH WORLD HEALTH ASSEMBLY

The Thirteenth World Health Assembly was opened on May 3, 1960 at the Palais des Nations, Geneva, by Sir John Charles, Chief Medical Officer of the United Kingdom. Sir John, President of the Twelfth Assembly, presided until Dr. H. B. Turbott, Director-General of Health of New Zealand, was elected President of the Thirteenth World Health Assembly.

Delegations from 96 of the 101 Member and Associate Member States of the World Health Organization attended the Assembly, including delegations from the 11 countries and territories that joined the Organization during the Assembly.

Three new Member States and eight Associate Members were admitted to WHO during the Assembly. New Members are Cameroun, Republic of Togoland, and Kuwait; Associate Members are Cyprus, Central African Republic, Republic of the Congo, Republic of the Ivory Coast, Republic of Gabon, Republic of the Upper Volta, Republic of the Niger, and Federation of Mali. This brings the total membership of WHO to 101, of which 21 members are on the Continent of Africa.

The Assembly adopted a working budget of \$18,975,354 for 1961.

The Assembly devoted a major part of its discussion to the worldwide malaria eradication campaign and the critical status of the WHO Malaria Eradication Special Account (MESA). It is generally agreed that adequate financing is the only element lacking to successful conclusion of the global malaria eradication program which began in 1955.

The Assembly defined the role of WHO in radiation medicine to include the protection of mankind from ionizing radiation hazards from all sources and the development of medical uses of radiation and radioactive isotopes.

The Assembly discussed WHO's activities in promotion of health in connection with a recent UN General Assembly resolution concerning general and complete disarmament. The Assembly affirmed its belief that international co-operation in furthering WHO's objectives should be continued without pause while waiting for disarmament.

Delegates attended two days of technical discussions on "The Role of Immunization in Communicable Disease Control". Dr. Geoffrey Edsall, Director of Immunology Division, Walter Reed Army Medical Center, was chief spokesman for the U.S. in these discussions, which concluded that smallpox vaccination still holds first priority in the world, despite the varying epidemiological picture presented by different countries. The Assembly emphasized the urgency of achieving worldwide eradication of smallpox and urged countries which have not yet begun eradication campaigns to make the necessary effort to overcome administrative and financial difficulties and to give smallpox eradication high priority. The Governments of Netherlands and Jordan offered WHO gifts of 2,000,000 and 3,000,000 doses of smallpox vaccine, respectively, to aid in the eradication campaign.

The Role of the Laboratory in a Milk Control Program

D. J. MACKENZIE,¹ M.D., F.A.P.H.A.

IN discussing the role of the laboratory in a milk control program I assume that by "laboratory" is meant one which is operated by the Department of Health of some level of government. There are more than a few well-informed persons who vigorously deny the necessity of local governmental laboratory participation in a present-day control program. They admit the necessity for the introduction by governmental health agencies of laboratory methods for control purposes and the need for subsequent standardization of these procedures. They maintain, however, that once these steps have been accomplished, the control exercised by government departments of health can be carried out more conveniently, more economically and no less accurately by either one of two organizations, namely those who process and distribute the product, or by Government Departments of Agriculture. The trend towards this form of control is increasing in the United States where already, in several of the states, some form of control other than by a Department of Health Laboratory is in effect. Those who support this trend also point out that most of the improvements in the production of safe milk and other dairy products have been developed from within the industry.

In the case of raw milk, the greatest advances in the production of safe milk have been the virtual eradication of bovine tuberculosis and Brucellosis by means of herd testing and elimination of reactors. In both cases the sponsor was the Health of Animals Branch of the Federal Department of Agriculture, the motive mainly economic, more milk at a lower cost to the producer, with the elimination of human disease a most welcome result, but somewhat in the nature of a byproduct or extra dividend. One may say that the situation is different in the case of the finished product, pasteurized milk. Here too we have no great cause for complacency. Many of the laboratory tests in use today have been developed by the milk industry and our methods of sampling, as well as the accuracy and reproducibility of the results obtained in testing the samples, make a rather feeble prop to support our advocacy to act as a control agency.

While we admit that our contributions to methodology have not been particularly impressive I feel strongly, as do most public health workers, that the sanitary control of milk and dairy products should not be handed over to either processors or to agricultural organizations. The main objection lies in the fact that government departments of agriculture were organized and exist to promote the economic well-being of those who are concerned with the production of agricultural products. Experience has taught us that when a

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major responsibility or objective is in conflict with a minor one, the minor objective will be subordinated or perhaps entirely eliminated by the major one. In this case the health aspect would be subordinated unless carried out under authority of a Department of Health where the sole objective is the promotion of the public health. Here exist the personnel and facilities for work designed for the safety and protection of the consumer rather than for the profit of the producer. This need not create any friction or duplication of effort between the two organizations since each has different objectives.

I have always believed that maintenance of the quality of the raw product is the responsibility of the industry. The cost of the inspection and laboratory investigation necessary to ensure the production of high quality raw milk should be borne by the industry that derives a profit from the sale of the product, the price of which is controlled in a manner similar to a public utility. Responsibility for the control of both the quality and the safety of the finished product should rest with the various services operated by the Department of Health and the cost chargeable to that Department.

Of the various tests in vogue today, those which are directed towards the actual counting of microorganisms present, whether by the direct microscopic method in raw milk or by the standard plate count in pasteurized milk, have fallen into what I consider to be undeserved neglect. The direct microscopic count, though admittedly a cumbersome and tedious procedure, quickly furnishes more information than any other test regarding the extent and probable source of bacterial contamination in raw milk, particularly when the dilution factor is not excessively high. Similarly, the standard plate count on pasteurized milk is the most reliable laboratory index of the sanitary status of both the producer and the processing plant. It has fallen from favour largely due to the difficulty of obtaining a sample in which the distribution of the various ingredients, especially those of a particulate nature, are uniformly maintained and still representative of the distribution in the bulk from which the specimen was collected. This lack of uniformity in random sampling gives rise to a glaring lack of reproducibility in the results of duplicate counts.

There are, however, a pair of tests, the alkaline phosphatase test and the Coliform M.P.N. which, when used together and properly performed, were almost invariably dependable in their results. I use the past tense since, because of changing methods of processing, these tests are no longer dependable to the same degree. It is with the former test that difficulty has arisen. This test, the phosphatase test, of which there are several modifications, was developed to determine the adequacy of pasteurization when done by holding the milk at approximately 145° F. for twenty to thirty minutes. Under these conditions it was highly reliable, the duration or temperature of storage after pasteurization within wide variations having practically no effect on the phosphatase level. Following the increasing use of the H.T.S.T. method of approximately 160° F. for sixteen seconds and the more recent use of even higher temperatures, it gradually became evident that there was no longer the former high degree of reliability. Milk that shows a satisfactory reduction of phosphatase when examined immediately after pasteurization by the H.T.S.T. method sometimes does not maintain that satisfactory low level.

The phosphatase, or at least some of it, is inactivated only. The process appears to be reversible and under certain conditions the phosphatase can become reactivated during storage. Several factors determine the actual degree and rapidity of reactivation. It is greater in proportion to the increasing temperature and consequently to the shorter interval to which such milk has been exposed during pasteurization. Reactivation occurs more quickly when the milk is stored at higher temperatures, being negligible following twenty-four hours storage at 40° F. but considerable in three hours at 70°-80° F. Reactivation is also greater and more rapid as the content of butterfat in the milk is increased. Cream on which the phosphatase test was satisfactory immediately after H.T.S.T. pasteurization would be regarded as inadequately pasteurized after storage at 60° F. for 6 hours, or at 40° F. after 48 hours.

What, then, are we prepared to offer to the distributor and consumer in support of our claim to act as the control agency? There have been no important original advances in methodology during the past several years except special tests for the identification of antibiotics, Leptospirosis, "Q" fever, staphylococci, etc. though, of course, there have been various improvements and refinements in already existing techniques. There are, in the literature pertaining to dairy products, few signs of important original developments of technique in the foreseeable future. We must, then, make better use of the methods now available to us.

The two most obvious avenues through which improvement can most easily be brought about are a greater degree of decentralization of laboratories where milk testing facilities are available, and greater care in obtaining a representative sample. The difficulty in sampling inherent for any substance in which there is not a uniform dispersal of ingredients is evident, but often in actual practice insufficient care is taken to overcome these difficulties, proper mixing being difficult and sampling sometimes being done with an entirely inadequate pipette. Multiple samples collected from the same container by such methods may show a count variation of 1000%. The practice of shipping milk samples hundreds of miles for examination is absurd. Probably a mobile type of laboratory is the only solution for such outlying areas. In some localities specimens will not be accepted for testing over six hours after pasteurization. In others, bacteriological tests will not be done if the sample is above 45° or 50° F., but no allowance is made for the reactivation of phosphatase even when samples are held for relatively prolonged intervals at summer temperatures.

Little can be done about the unavoidable variation that is inherent in all laboratory procedures which affect the accuracy and reproducibility of any given test. These unavoidable variations are far from being negligible in milk testing procedures but the avoidable variations can and sometimes do produce discrepancies that cause the results obtained to be not merely meaningless or misleading but actually disastrous, particularly when the legal aspects of a milk control program are invoked. A very high degree of academic knowledge and technical skill, whether bacteriological or chemical, is not essential in the *routine* examination of milk. Moderate knowledge with reliability and the capacity to give meticulous attention to the details of highly standardized procedures are the most important qualifications to seek in choosing personnel for this work. What happens to a milk specimen during sampling or in transit

to the laboratory is more frequently decisive than what happens during the actual testing procedure.

In many control programs, perhaps in most, relatively little demand is made to identify the various additives which may and sometimes do appear in milk. The outstanding exception to this is the need to control the addition of various antibiotic agents. Of these, penicillin has become the most important. The increasing number of penicillin allergies occurring in patients for whom there is no record of previous penicillin therapy, is significant. This may sometimes be due to sensitization induced by penicillin in milk. Producers use this antibiotic frequently, not only in the treatment of mastitis but sometimes as a bacteriostatic agent in an attempt to mask unsanitary conditions and maintain low bacterial counts.

Another field in which additional control may be required in the future is suggested by the increasing popularity of vacreated milk with its improved flavor and greatly delayed onset of souring, where the pasteurized product is directly exposed to live superheated steam. Some of the antifoaming agents which may be added to boiler water are toxic and it is possible that varying quantities of these may be carried over with the steam and remain in the milk.

In conclusion, I would suggest that from a purely laboratory standpoint, five tests be utilized for the *routine* control program: on raw milk, the direct microscopic count supplemented by the resazurin reduction test which is of value particularly in the detection of milk in which well-marked clumping of bacteria has taken place; on pasteurized products, the big three—phosphatase test, coliform M.P.N., and standard plate counts. To these must be added special tests indicated by circumstances and active field inspection services.

INSTITUTE ON COMMUNITY EDUCATION FOR HEALTH

In conjunction with the 1961 National Convention of the Canadian Public Health Association, an Institute on Community Education for Health is being scheduled. The Institute will be held at the University of Saskatchewan prior to the C.P.H.A. Convention from June 2nd to June 5th and will reconvene in Regina after the national meetings for a final study day on June 9th. The major objective of the Institute is to assess current concepts and techniques in the diffusion of health information and to develop a fresh approach to the understanding and educating of the public. As such, the scope of the Institute embraces all professionals in the field of health whose work has educational implications in the community. The Institute, to be held in the Department of Social and Preventive Medicine, is jointly sponsored by this Department, the Department of Public Health, Province of Saskatchewan, and the Center for Community Studies, University of Saskatchewan.

Enquiries or suggestions should be addressed: **Dr. Robin F. Badgley, Department of Social and Preventive Medicine, University of Saskatchewan, Saskatoon.**

Health Education Training in Canada¹

ANNE GRANT², M.P.H.

WHEN I agreed to speak on Health Education Training in Canada, the first thing I did was to write several people and ask why this particular subject had been chosen for the health education section meeting. The members of the section could hardly want a review of the courses available as they know perfectly well what they are. So what did they want? The answers to my query showed that sizeable groups wanted two matters raised for discussion. The first of these was the fact (regretted in some quarters) that the majority of Canada's English-speaking health educators go to American universities for training. The second request was that consideration be given to training health educators with less academic training than is at present demanded. This group wanted the section to consider the feasibility of asking one or more universities to establish courses which could be taken by students with grade XII, or grade XII plus teacher training.

My comments apply to training in Canada for English-speaking students. French-speaking health educators are trained in large numbers at the University of Montreal. Many public health workers would like to see an equal number of English-speaking health educators at Canadian universities. One reason is that an appreciable number of our migrants never come back, and that some who return stay only two or three years and then take positions in the United States. The export of educators, the critics are convinced, would be diminished if the students trained in Canada in the first place. They believe also that there would be distinct advantages in having the health educators training with other Canadians, probably future co-workers.

Why then are not more of them registering for a course in Canada they ask, more or less rhetorically.

One reason is that the University of Toronto requires two years of post graduate work to qualify for a Master's degree while if a student has acquired sufficient of the prerequisite courses a Master's degree in Public Health can be gained at American schools of public health in one year. True, when the requirements for health education candidates to these schools are examined it is found that very few candidates measure up to them unless they have already had some post graduate work. In practice, about the only students who could get an M.P.H. in one year would be those whose undergraduate work was very heavily weighted with science and education courses. A typical candidate for an M.P.H., in the United States, has had some post graduate work.

¹Presented at the 50th annual meeting, Canadian Public Health Association, Health Education Section, Halifax, N.S., May 31, 1960.

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Evidently what was desired was a neat, tidy plan, one that would be easily implemented. I have no such plan to offer. I invited suggestions but as nearly as I could determine the only solution anyone had to offer was that the University of Toronto be asked to "strengthen" its course in health education, and perhaps to soften the attitude of the Graduate School to make possible the achievement of a Master's degree in Public Health in one year. This, may it be noted, without anyone undertaking to ensure that there would be students in sufficient number to make the course worth while.

Judging from press and radio reports and the speeches made by university presidents, our universities are now operating under extreme pressure, occasioned by the unprecedented flood of students. There is every indication that the numbers will continue to swell at a rate that keeps administrators awake nights wondering how they will find the funds, plant and staff to keep up to the demand. Can it be expected under such circumstances that a request or recommendation regarding a course will be taken very seriously by a Board of Governors unless it is most specific and is accompanied by the assurance that a large enough student body is ready to take the course offered?

And here, I think, we come to the heart of the matter. Where are the students to be recruited? In the last 15 years how many Canadians have taken health education courses in either Canada or the United States? If there had been three a year that would make 45 Canadians with a Certificate or a Master's degree in Health Education. I don't believe there are that many. Unless we can produce more students than that we can scarcely expect to be taken very seriously.

I have taken rather a long time to get to what I feel is the point about health education training in Canada, which is that English-speaking Canada has not made up its mind about what it wants in health educators or reconciled its idea of what it wants with what it is willing to pay. French-speaking Canada has. Quebec has said in effect, "We cannot afford educators who have university degrees and post graduate training for all the health units. What we can do is give special courses to public health nurses who are interested in education. They will get only the same salary as other public health nurses but they will get bursaries on which to do their studies and they will find their work more interesting."

The accounts of their work appearing monthly in *Liaison* are ample proof, I think, that they serve their public well. At the same time it must be acknowledged that when someone says to me "Can you tell me where I can get a health educator?" he is not thinking of someone who will do the kind of job reported in *Liaison*. He is generally looking for either an assistant administrator who also is well grounded in adult education techniques and community organization, or someone with special training in press, radio and TV, who is good at something else, such as organizing mass surveys, directing a school health program for a city, or doing a job in a big industrial health scheme—in short, a person who has considerable training or exceptional ability or both.

Where and how such recruits are to be found appears to me to be a much more urgent problem than where they get their training. Should not the first step be for a representative committee to take a straightforward look at

the great dearth of applicants for training grants, and try to arrive at a compromise between what is being asked for in a health educator and what salary health departments or voluntary agencies are willing to pay. If we are asking for people with training that would make them valuable in other fields then we had better take a candid look at the salaries and opportunity for advancement in those fields. If we can match them, then recruit on that basis. If this increases substantially the number of candidates stepping forward for training then we would be in a much better position to approach a university senate with proposals concerning what is needed in a course for health educators expecting to work in Canada. It is much easier to plan and construct a course if one has a clear idea of what the graduate is supposed to be able to do when he gets through it.

If such a committee came to the conclusion that conditions do not warrant the employing of such highly-trained staff then the second suggestion which was submitted—that we consider short courses for students who had not university training—might be considered. This, I think, would have to be a provincial matter. At least one province did experiment with this. It recruited teachers and in its own department trained them in adult education techniques. It would entail a great deal of time for the provincial staff. They would have to be the ones to decide whether it was worth while or not.

In short, I feel that the official health departments and the voluntary agencies need to reach more definite conclusions about the job they want done by health educators before they suggest to any university what it should do.

1961 ANNUAL MEETING

CANADIAN PUBLIC HEALTH ASSOCIATION and the SASKATCHEWAN BRANCH

June 6, 7, 8,
(Executive Council — Monday, June 5)

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CANADIAN TUBERCULOSIS ASSOCIATION— DIAMOND JUBILEE

THE Canadian Tuberculosis Association was organized sixty years ago. The Earl of Minto, then Governor-General of Canada, called a meeting in Ottawa which resulted in the formation of this internationally known voluntary health agency. It was fitting that on its Diamond Jubilee last June the Executive Council of the Canadian Tuberculosis Association met again in Rideau Hall to report back to His Excellency, Major General Georges P. Vanier, on the progress of sixty years.

The Association's first Secretary was the Reverend William Moore of Prince Edward Island, a retired minister. He served as a volunteer until the work of organizing the national Association required him to devote all his time. His annual salary was \$1,000. In 1906 Dr. George D. Porter succeeded Dr. Moore and for many years travelled throughout Canada organizing local anti-tuberculosis societies in communities everywhere and proclaiming that tuberculosis was a preventable disease, thereby replacing fatalism with hope.

When the Association was established in 1900 in Ontario alone 3,484 deaths were recorded from tuberculosis, a death rate of 160 per 100,000 population. Last year in Ontario tuberculosis claimed only 166 lives and the death rate was 2.8 per 100,000. Truly these statistics are vital exponents of the success of the tuberculosis control program.

In 1921, Dr. Porter was succeeded by Dr. R. E. Wodehouse under whose leadership the program of tuberculosis control was further enlarged and strengthened. Dr. Wodehouse later resigned to become Deputy Minister of National Health and Dr. G. J. Wherrett was appointed Executive Secretary. In 1958, the Association marked the twenty-fifth anniversary of Dr. Wherrett's appointment with expressions of the warmest appreciation. Dr. Wherrett's contributions have been recognized internationally. Next year, as President of the International Union against Tuberculosis, he will preside at the fortieth meeting of that body which will be held in Canada.

The contribution of devoted physicians and laymen in the long struggle against tuberculosis has been as important as the Association's outstanding leadership. At the last annual meeting, Dr. Wherrett told the story of the "Dauntless Men" who battled tuberculosis and the Canadian Journal of Public Health has the privilege of presenting his address in this issue.

The dramatic reduction in tuberculosis mortality constitutes the Association's reward for sixty years of effective, patient, work. We extend our heartiest congratulations to the Canadian Tuberculosis Association on its Diamond Jubilee.

Association News

Manitoba Public Health Association

The annual meeting of the Manitoba Public Health Association was held on October 18 in conjunction with the ninth annual Manitoba Hospital and Nursing Conference at the Royal Alexandra Hotel, Winnipeg. Dr. Harry Medovy, Medical Director of the Children's Hospital in Winnipeg, outlined the events of the Canadian Conference on Children held in Quebec during October. The afternoon session featured a panel on fire prevention which was moderated by J. Courteau. The panel members included: Fire Chief Dave Dunnett; George Kelly, sanitary inspector, City Health Department; Mark Flattery, Chief Sanitary Inspector, Manitoba Department of Health and Public Welfare; Mrs. Lois Klaassen, public health nurse, Provincial Health Department; Mr. P. Lyons, fire inspector with the City Fire Department.

The officers elected for 1960-61 were: President—J. Courteau; First Vice-president—R. E. Wendeborn; Second Vice-president—Miss Mary Wilson; Secretary-Treasurer—J. Warrener; Past President—Dr. J. B. Morison. Section Representatives: *Medical Officers*—Dr. W. G. French; *Nursing*—Miss M. E. Henderson; *Sanitation*—D. R. Furness; *General*—Dr. C. McCormack.

Alberta Division

Miss I. Yeondle has been elected as chairman of the Occupational Health Workers' Section of the Alberta Division, C.P.H.A.

Ontario Public Health Association

The Eleventh Annual Meeting of the Ontario Public Health Association was held on Oct. 3-5 at the King Edward Hotel in Toronto with Miss Helen Fasken, R.N., presiding.

The Minister's Conference for Medical Officers of Health was opened by the Hon. Matthew B. Dymond, M.D., Minister of Health. This conference was highlighted by a symposium on cardiovascular disease presented by the Ontario Heart Foundation in collaboration with the Ontario Department of Health. Dr. A. H. Sellers, Director, Division of Medical Statistics, Ontario Department of Health, introduced this with a paper entitled "The Problems of

Cardiovascular Disease in Ontario", Dr. J. D. Keith, Physician-in-Charge, Department of Cardiology, Hospital for Sick Children, Toronto, spoke on rheumatic fever, Dr. G. W. Manning, Associate Professor, Department of Medicine, University of Western Ontario, London, gave a paper on phonocardiography in the diagnosis of heart disease, Dr. J. A. Key, Associate, Department of Surgery, University of Toronto, spoke on vascular surgery: present status and future trends, and Dr. J. M. R. Beveridge, Professor of Biochemistry, Queen's University, Kingston, gave a paper on diet and cardiovascular disease.

Dr. G. D. W. Cameron, Deputy Minister of National Health, Ottawa, presented an outstanding luncheon address entitled "The WHO—The World's Most Successful International Organization".

On Monday evening, the Health Officers' Section held a reception and social hour to honour two of the foremost leaders in public health in Ontario, both of whom had retired from the Ontario Department of Health within recent weeks. On behalf of the group, a watch was presented to Dr. DeWillett S. Puffer by Dr. D. Currey, St. Catharines-Lincoln Health Unit, and Dr. L. Sturgeon, Welland County Health Unit, presented a watch to Dr. R. Gordon Struthers.

The theme of the meetings was Program Evaluation. At the first general session, Dr. Milton H. Brown, Professor and Head of the Department of Public Health, University of Toronto, was chairman of a panel on "Program Evaluation—Canada", in which Dr. G. D. W. Cameron, Deputy Minister of National Health, Dr. W. G. Brown, Deputy Minister of Health for Ontario, and Dr. C. W. Schwenger, Assistant Medical Officer of Health, East York-Leaside Health Unit, Toronto, participated.

Two outstanding visitors from the United States contributed to this theme. Dr. Andrew C. Fleck, Jr., Evaluation Consultant, New York State Health Department, Albany, gave a very stimulating address "Evaluation as a Logical Process", at the annual dinner, and spoke again at the second general session on "Program Evaluation Studies in New York State". Dr. Albert E. Huestis, State Health Commissioner of Michigan, gave a very inspir-

ing closing address "Michigan—The State of Local Health" in which he reinforced the enthusiasm created by the general sessions and section meetings in evaluation of what is being done in the light of present needs.

At the annual dinner meeting, Miss Helen Fasken, the President, presented honorary life memberships to the following nine former Ontario public health workers in recognition of distinguished service to the Association and outstanding leadership in public health: Dr. George Clair Brink, Miss Ethel M. Cryderman, Dr. Reginald P. Hardman, Mr. Frederick S. Hetherington, Dr. Charles A. Keddy, Dr. John F. Lavery, Dr. DeWillett S. Puffer, Miss Edna M. Squires, and Dr. R. Gordon Struthers.

Miss Helen Fasken was presented with the Past President's pin by Dr. A. V. Hall, in recognition of her outstanding leadership as president.

Dr. A. V. Hall, Director of Food Control, Department of Health, London, Ontario, was installed as President of the Ontario Public Health Association at this meeting, and expressed his appreciation of this honour.

Those honoured by the Ontario Public Health Association are well known across Canada and the citations are given below:

Dr. George Clair Brink

Doctor George Clair Brink has given leadership in the control of tuberculosis ever since the First World War. The outstanding achievements in this field have in no small measure been due to his vision and singleness of purpose. He early recognized the need for bringing both treatment and diagnostic services to the public. Dr. Brink organized the first travelling chest clinic in Canada, leading the way for similar services which rapidly expanded not only in Ontario but in all other provinces. He was the moving spirit in the recognition of the principle that sanatorium beds should be made available for all sufferers from tuberculosis in areas reasonably near their homes. He supported the voluntary effort in every way possible, recognizing that the control of tuberculosis, to be successful, must be a combination of official and voluntary organizations. He played a major role in the formation of the Ontario Tuberculosis Association as well as serving as president of the Canadian Tuberculosis Association. One of Doctor Brink's outstanding characteristics is his humani-

tarianism and his efforts on behalf of the suffering went far beyond the call of duty. In recognition of his outstanding achievements and the wide-spread esteem in which he was held, Queen's University conferred on Dr. Brink the honorary degree of LL.D. in June, 1953.

Miss Ethel M. Cryderman

A native of Walkerton, Ontario, and a graduate of the School of Nursing, Toronto General Hospital, Miss Cryderman served overseas with the R.C.A.M.C. in World War I. Returning to Canada, her interest turned to public health. Preparation in public health nursing at the University of Toronto and in midwifery and mothercraft in England provided a sound background for the development of her career. After experience as a staff nurse and district supervisor with the Toronto Department of Public Health, Miss Cryderman joined the staff of the Victorian Order of Nurses for Canada, first as a national supervisor and, from 1934 until her retirement in 1958, as District Director of its Toronto Branch. Under her leadership the Toronto Branch of the Victorian Order of Nurses not only extended and developed its services but acquired a reputation for the highest standards of visiting nursing care. Her administration was characterized by a warm interest in the people with whom she was associated, a willingness to share with them her talents and experience, and a desire to assist them to prepare for the future. Her interests and abilities ranged far beyond the public health nursing field. In the community she contributed in no small way to the development of other health and social agencies. A past president of both provincial and national nursing organizations, her influence in the nursing profession extended into provincial, national and international fields.

Dr. Reginald Peers Hardman

Reginald Peers Hardman is a Torontonian by birth. Barrie was the site of his elementary schooling and London, Ontario responsible for his secondary education. He graduated in medicine from the University of Western Ontario, 1913 and that fall became associated with the Ottawa Department of Health as assistant to Dr. Lawson, Superintendent of the Ottawa Isolation Hospital. In the spring of 1914 Dr. Lawson resigned and "Reg" was appointed in his

stead. He held this post until the summer of 1916 when he joined the Canadian Army Medical Services with the rank of Captain and was assigned to Transport duty. Here he experienced among other problems, those connected with the influenza pandemic. He was mustered out of the army in February, 1920. Shortly thereafter he went to New York where he worked under Dr. Wm. Parks at the Willard Parker Hospital. His attention at this center was confined to communicable disease research and treatment until severing connection with this hospital in 1927. On October 1, 1929, after completing the D.P.H. course at the University of Toronto, Dr. Hardman joined the Provincial Department of Health as a member of the then Division of Preventable Diseases. In 1941, he became epidemiologist in charge of the Epidemiological Branch and in this capacity he served until retirement August, 1960. "Reg" is not in stature a giant, but at heart; his unassuming, gentlemanly and kindly way of discharging his duties more than compensate for lack in height.

Mr. Frederick S. Hetherington

Fred Hetherington was born at St. Catharines seventy-two years ago. He received his schooling in St. Catharines and Brantford and subsequently entered the engineering trades. He served with the Canadian Expeditionary Force between 1915 and 1919 taking part in the major engagements of Vimy Ridge and Ypres Salient. On return to civilian life he resumed work with his firm, leaving it in 1930, after twenty-five years' service, to become sanitary inspector of the City of Brantford. Mr. Hetherington served Brantford in this capacity until 1946 when, on the city entering the Brant County Health Unit, he became senior inspector with the Unit, a post which he held until his retirement in 1959. Mr. Hetherington was engaged in pioneer work in connection with milk sanitation prior to pasteurization becoming mandatory and, at one time, was responsible for the supervision of most of the raw milk production in Brant County. Additionally, he assisted in the earlier epidemiological studies of poliomyelitis, personally investigating the first familial outbreak recorded in Ontario. He has also actively participated as a preceptor in the field training of student sanitary inspectors. His tactful approach to all situations and

practical solutions of difficulties when encountered has earned the respect of both public and professional circles throughout the province.

Dr. Charles A. Keddy

Dr. Charles A. Keddy has had a distinguished military, professional and public career. He was born at Halifax, Nova Scotia, 1890 and received his professional training at the Ontario Veterinary College from which he graduated in 1916. Immediately after graduation, Dr. Keddy enlisted in the Royal Army Veterinary Corps with which he served until 1919. Upon demobilization he returned to Canada and established a practice in Cornwall. During subsequent years, Dr. Keddy has distinguished himself in a number of fields. He was a specialist in the application of tracheotomy to equine surgery and founded the first branch of the Humane Society in Cornwall, later becoming its president. Dr. Keddy was elected a member of the Cornwall City Council for five consecutive years. During this time he was Chairman of the Health and Sanitation Committee of the Council and an indefatigable worker for the promotion of community health. On the formation of the Stormont, Dundas and Glengarry Health Unit in 1947, Dr. Keddy was appointed public health veterinarian and remained in that post until his retirement in November, 1959. Since retirement, Dr. Keddy has, on a voluntary basis, been the local organizer of a tuberculosis survey in the United Counties. During his years of service Dr. Keddy has contributed materially to the advancement of public health in Eastern Ontario by his enthusiasm, unselfishness and broad humanity to all.

Dr. John Franklin Lavery

Some years after Confederation, John Franklin Lavery was born in Uxbridge, Ontario. He attended Public and Continuation Schools in Cannington, Goodwood and Sunderland. Following graduation, as a very young man, from the Ontario Veterinary College, University of Toronto, he entered private veterinary practice at Sunderland with his father and a partner. For a short period just before joining the army, he had his own practice. He served with the Royal Army Veterinary Corps in France during World War I and in Germany for six months after the War. He had the rank of Captain on discharge. Follow-

ing the war he set up practice in Sutton West and also undertook dairy farm inspection for the community. He joined the Toronto Department of Public Health in June 1925 and in 1948 was appointed Assistant Director of Food Control. Upon the retirement of the late Dr. A. R. B. Richmond, Dr. Lavery succeeded him as Director of Food Control, in which capacity he continued until his retirement from the Department, June 1, 1957. Thus he served thirty-two years, less a fortnight, in full-time public health work. Dr. Lavery could not stay retired and now he does the public health inspection work for the village of Swansea, according to its distinguished medical officer of health, "the healthiest square mile in Canada".

Dr. DeWillet Stanley Puffer

Dr. DeWillet Stanley Puffer was born in Ingoldsby, Ontario, and spent his earlier years in Illinois, U.S.A., and Lindsay, Ontario. He attended Victoria College, University of Toronto, graduating in Arts in 1918 and in Medicine in 1920. In 1942 he received the Diploma in Public Health and in 1950 was granted Certification in Public Health by the Royal College of Physicians and Surgeons. During the First World War he was overseas with No. 4 Canadian General Hospital. After discharge he completed his medical studies and established private practice in Toronto. His career in public health commenced in 1920 when he became District Medical Officer in the City of Toronto. From June, 1943 to November, 1944 he demonstrated his organizing ability as Medical Officer for the City of Kingston and on December 1, 1944 he joined the Ontario Department of Health, being appointed Assistant Chief Medical Officer of Health. This position he held until August, 1960. Dr. Puffer was a valued member of many departmental and other committees. He was a lecturer at Queen's University, the School of Hygiene, University of Toronto, and was examiner for the Royal College of Physicians and Surgeons, and was in demand by many organizations to speak on public health topics. In addition to his outstanding administrative abilities, he is an accomplished musician and has brightened many intervals at conferences.

Miss Edna M. Squires

Miss Edna M. Squires retired from the Division of Public Health Nursing, Ontario

Department of Health, in December 1959, after 38 years of service. Following graduation from Toronto General Hospital in 1916, Miss Squires spent four years as a graduate nurse within the hospital before taking a position with Union Carbide Canada Limited in Welland. In 1921 she joined the Ontario Department of Health, first with the Division of Industrial Hygiene, later with the Division of Maternal and Child Health and Public Health Nursing. Many years were spent in the Rainy River District and the eastern Ontario counties demonstrating public health nursing in urban and rural areas. In 1944, when the Division of Public Health Nursing was established, Miss Squires was appointed a regional supervisor working from the Parliament Buildings. She served first the eastern section of the province before the establishment of the Ottawa regional office. In 1946 Miss Squires was seconded to serve as supervisor for one year with the new health unit opening in Prescott and Russell Townships. In 1952 Miss Squires was appointed as Assistant to the Director in the Division of Public Health Nursing. She is a Charter Member of the Ontario Public Health Association and has been active in this Association since its inception.

Dr. Robert Gordon Struthers

Dr. Robert Gordon Struthers received his elementary and secondary school education in the City of Galt and then obtained his Junior and Senior Teacher's certificates. After two years in the teaching profession he entered the University of Toronto and graduated from the Faculty of Medicine in 1914. In 1915 Doctor Struthers entered the service of the Presbyterian Church as a medical missionary to North Honan Province in China and continued in this service and that of the United Church of Canada for more than twenty-five years. During this period he served in France as a medical officer with the Chinese Labour Battalion from 1917 to 1919. Dr. Struthers returned to Canada in 1942 and enrolled in the School of Hygiene, obtaining his Diploma in Public Health, following which he joined the Health Department of the Township of East York. This appointment was interrupted when he joined the Royal Canadian Navy for special service with the rank of Surgeon Lieutenant-Commander. On December 1, 1944 he returned to civilian life

and joined the Ontario Department of Health where he undertook the difficult task of developing Health Unit Services. At that time only one health unit was in operation whereas by June of this year there were 34 health units in active operation and an additional number in prospect.

In recognition of his distinguished service in the field of public health and extensive knowledge and experience in tropical diseases Doctor Struthers was honoured with Specialist Certification in Public Health by the Royal College of Physicians and Surgeons of Canada.

News Notes

National

On the occasion of the Diamond Jubilee of the Canadian Tuberculosis Association on June 30 the following received honorary life membership: Miss Mabel Stewart, formerly superintendent of nurses at the Royal Ottawa Sanatorium; Dr. E. J. Lehman, medical superintendent, Royal Ottawa Sanatorium; Dr. G. C. Brink, Toronto, formerly director of tuberculosis prevention and control, Ontario Department of Health; Dr. F. L. Felts, medical superintendent, Royal Edward Laurentian Hospital, Ste. Agathe des Monts; Dr. J. A. Melanson, chief medical officer and registrar general, New Brunswick Department of Health; Dr. B. H. Hopkins, medical superintendent of Onganawada Sanatorium, Kingston; and Dr. R. E. Wodehouse, Ottawa, formerly of the Department of National Health and Welfare.

Federal

On the recommendation of the Garter King of Arms, Her Majesty Queen Elizabeth has approved a specially designed badge for the Indian and Northern Health Services of the Department of National Health and Welfare. The badge will be worn on parkas used by field medical and nursing staff and on official blazers. The purpose of the badge is to provide a symbol of the services so that the staff may more readily identify themselves with the organization, and to provide a device which the Indians and Eskimos will come to recognize as a symbol of help and understanding.

The disc is blue in colour encircled by a narrow gold border or frame. On this blue background appears a large white star of sixteen points to symbolize the North Star, upon which is placed vertically with the point toward the top, an Indian arrow in red, the arrow being entwined by a golden serpent so that together they resemble the Rod of Aesculapius. Below the disc are two branches of maple tied together in the base with a ribbon, all gold. The entire design is surmounted by the Royal Crown in the official colours to signify that this is a branch of the government services.

Dr. G. C. Butler, D.P.H. was recently appointed to the Directorate of Indian and Northern Health Services where he will be responsible for the continuing development of the Directorate's program in public health. Dr. Butler is a graduate in medicine and holds the Diploma of Public Health of the University of Dublin, Ireland and since 1945 had been associated with the public health services of Nigeria.

Lieut.-Col. Charles Leslie Smith was recently appointed Commandant, Canadian Civil Defence College, Arnprior, Ontario. Col. Smith was born and educated in Western Canada and served overseas in World War II with the First Armoured Brigade, Royal Canadian Armoured Corps. He was invalided back to Canada in 1943 and has served at National Defence Headquarters, Ottawa.

Dr. J. Edgar Monagle has been appointed chief of the Nutrition Division of the Department. Dr. Monagle has been Acting Chief of the Division since Dr. Pett became Principal Medical Officer in charge of Research Development.

Dr. J. W. Fisher was recently appointed consultant in the Research Development Administration of the Department of National Health and Welfare. For the past ten years Dr. Fisher has been Consultant in Research Statistics to the Mental Health Division of the Department.

Mr. James Gibbard, M.Sc., director of the Laboratory of Hygiene, has been granted leave to direct a survey of provincial laboratory services at the request of the province of Ontario. He was married on September 29 to Miss Helen Coleman of Ottawa.

Newfoundland

A system of grants to medical students which had been in force during the days of Commission government was restored in 1959. Under the scheme a student who wishes to apply for assistance, may do so after he has completed his first three years of pre-medical training and is accepted by a recognized

medical school. For a remaining four years, a grant of \$1,200 will be paid in two allotments, conditional on the student maintaining the standards required. In return, the graduate doctor must serve two years with the Department of Health, and then serve an additional two years in practice in Newfoundland.

Nova Scotia

Miss Mary MacSephney, public health nurse in Parrsboro, was married on October 8 and is retiring from the staff at the end of November to live in Oshawa, Ontario.

Miss Edna Walsh, consultant in maternal and child health, attended an institute on maternity care in Charlottetown during October.

Prince Edward Island

An Institute on Maternity Care was held in Charlottetown during October. The chief speaker was Miss Aileen Hogan of the New York Maternity Center.

Quebec

Dr. Jean Marion has been appointed as superintendent of the Division of Medical Control and Medico-Legal Adviser to the Department of Health of Montreal, succeeding Dr. Louis Roux who retired in March 1959. Dr. Marion graduated in medicine from the University of Montreal in 1941 and joined the Montreal Department of Health in 1946.

Mr. L. de G. Sylvestre, superintendent of the Director's office in the Montreal Department of Health, died suddenly on July 4, 1960. Mr. Sylvestre received his B.A. from St. Mary's College of Montreal and served in the Royal Canadian Navy before entering the Montreal Department of Health where he served for 28 years.

Ontario

The new Nightingale School of Nursing was opened recently in Toronto, using the former residence at the Hospital for Sick Children. A new eight-storey school and residence, adjacent to the New Mount Sinai Hospital, will be built to provide accommodation. The school aims to turn out fully-trained nurses in two years, having full control of a student's time within the classroom and in her clinical experience. The school has been sponsored by the Ontario Government through the Hospital Services Commission. This follows the pattern set in a pilot project in Windsor, Ontario, during the last twelve years. The project was sponsored by the Canadian Nurses' Association and financed by the Canadian Red Cross Society.

Dr. R. P. Hardman, D.P.H., has retired, having served the Department of Health as provincial epidemiologist and member of the staff of the Department of Health of Ontario for 31 years.

Dr. D. S. Puffer, Assistant Chief Medical Officer of Health of the Ontario Department of Health, retired in August.

Dr. Gordon Struthers, formerly Director of Health Unit Services, retired from the Ontario Department of Health in June.

An announcement has been made by the School of Hygiene, University of Toronto that Mr. John E. Osborne, Consultant in Hospital Administration of the Health Insurance Administration, Department of National Health and Welfare, was made the recipient of the Robert Wood Johnson Award for 1960. This award is given annually to a graduate in the course leading to the Diploma in Hospital Administration who has given promise of making an outstanding contribution in the field of hospital administration.

Miss Hazel Wilson, B.Sc.N., has been appointed to the staff of the Division of Public Health Nursing. Miss Wilson served as supervisor of public health nursing in the Kenora and District Health Unit from 1951 to 1959 returning to the University of Toronto to complete the Bachelor of Science Degree in Nursing.

Manitoba

Manitoba has increased the services to outpatients under its hospital plan. Dr. George Johnson, Minister of Health, recently announced increased services to outpatients under the Manitoba Hospital Plan. In addition to the current emergency services, the plan will include minor surgical procedures. The new outpatient regulations will also provide for electro-shock therapy.

Mr. Stefan Oliver, a former mayor of Selkirk, Manitoba, has been appointed to the Board of Health for a three-year term. The Board of Health is adviser to the Minister of Health and has province-wide representation. Dr. J. E. Hudson of Hamiota is chairman.

Dr. Sheila Murphy has been appointed medical director, St. James Health Unit. Dr. Murphy is a graduate of the National University of Ireland and has done postgraduate work in anaesthesia and tuberculosis at Tuft's University, Boston and Saint John, N.B. respectively. For two years Dr. Murphy was staff physician at the Ninette Sanatorium in Manitoba.

The Virden Health Unit has been expanded to cover the area of Rivers and Daly. Laboratory and X-ray services are now provided. The Virden Unit is under the direction of Dr. W. K. G. Allan.

Saskatchewan

Dr. E. R. Simpson, a graduate in medicine, 1946, University of London, has been appointed as medical health officer in charge of the Rosetown-Biggar-Kindersley Health Region.

Dr. Simpson received the Diploma in Public Health in 1958 from the University of London and in 1960 the Diploma in Industrial Hygiene from the Royal College of Physicians and Surgeons of England.

Dr. John H. McLaughlin has been appointed regional medical health officer and assigned to staff duties in the Regional Health Service Branch. He is a graduate in medicine and surgery of the University of Glasgow, 1937. Dr. McLaughlin holds the diploma of the London School of Tropical Medicine and Hygiene and is a licentiate of Rotunda Hospital, Dublin, in obstetrics.

Alberta

Dr. A. Somerville, Deputy Minister of Health, and Mr. J. H. Brown, Director of Entomology and Vector Control in the provincial Department of Public Health attended the International Northwest Conference of Diseases in Nature Communicable to Man, which was held at Banff during the latter part of August.

Mr. C. C. Evoy, Director of Health Education in the provincial Department of Public Health, who obtained his B.Ed. degree from the University of Alberta last year, was recently granted a year's leave of absence to take a position as Assistant School Superintendent at High Prairie.

It is now learned that Dr. V. E. Capogreco, whose appointment as dental officer with the Drumheller Health Unit was announced in the September issue of the Journal, has accepted instead a similar position with the city of Calgary Health Department.

Dr. J. B. Newton has resigned as medical officer of health with the North Eastern Alberta Health Unit, and has left for British Columbia.

Twelve persons from Alberta were present for the Canadian Conference on Children which was held at Ste Adele, Quebec, October 2-6. Those from the field of health included Dr. J. K. Martin, professor of paediatrics at the University of Alberta, who was co-chairman of the provincial committee, Dr. C. R. Castaldi, professor of paedodontics at the University of Alberta, Mrs. J. C. Bailey, maternal and child health nursing consultant in the provincial Department of Public Health, and Dr. E. S. Orford Smith, Director of Local Health Services in the provincial Department of Public Health.

British Columbia

A Food Service Institute, designed for personnel of smaller hospitals, was held at Nanaimo Oct. 24-28 under the sponsorship of the provincial health branch and the B.C. Hospital Insurance Service. The course was attended by 28 cooks from small hospitals on

Vancouver Island, the lower mainland and coastal communities. In addition to lectures and classroom periods, there were field trips and discussion periods.

On November 1, a tuberculin skin testing survey of all Grade I and Grade VI students in greater Vancouver schools was begun by the Metropolitan Health Committee. This survey replaces the patch test program on Grade I students which has been carried out during the past 10 years.

A study of multi-problem families has recently been completed by the Community Chest and Councils of Greater Vancouver with participation by the Metropolitan Health Committee.

Dr. J. H. Smith, director of occupational health services for the Greater Vancouver Metropolitan Health Committee, has returned from his orientation tour of occupational health centers in eastern Canada and the U.S.A. Dr. Smith is now engaged in the formation of an occupational health service for city of Vancouver employees.

Dr. J. F. Burrows has been appointed assistant director of the Central Vancouver Island Health Unit at Nanaimo. He is a graduate of Queen's University, Kingston.

Dr. J. A. Brown has been appointed assistant director of the Cariboo Health Unit at Prince George. He is a graduate of Edinburgh University.

Dr. Fred Brunton has been appointed regional dental consultant for Vancouver Island at Nanaimo. He is a graduate of the University of Oregon.

British Columbia was well represented at the Canadian Conference on Children at Ste Adele, Quebec, in October. The chairman of the provincial committee was Dr. Jean MacLennan, director of Health Unit No. 1 in Vancouver. Of those taking part in the program, four were from the University of British Columbia; Dr. N. A. M. MacKenzie, president; Dr. J. F. McCreary, Dean of the Faculty of Medicine; Miss Grace Dolmage, Faculty of Education and Dr. Kaspar Naegle of the Department of Anthropology and Sociology. Miss Ruby McKay, Superintendent of Child Welfare, and Mr. Russell MacKenzie of the Vancouver School Board participated in the program. Representing the provincial Health Branch were: Dr. J. A. Taylor and Miss Monica Frith. From the Health Centre for Children were Dr. David Kendall and Miss Ann Jenkins. Representatives from Vancouver were Miss Lillian Carscadden, Mr. Ed. Watson, Rev. James Taylor, Mrs. Mary Hill and Mrs. Grace Shaw.

Books and Reports

ON THE HISTORY OF MEDICINE,

Henry E. Sigerist, Edited by Felix Martí-Ibañez, M.D. MD Publications, Inc., 30 East 60th Street, New York 22, 1960, 313 pp., \$6.75.

Henry E. Sigerist, M.D., is known to all students of medical history. He was born in Paris in 1891 and died in 1957. During his lifetime he held many important posts, including those of Professor of the History of Medicine at the University of Leipzig, and Director of the Institute of the History of Medicine at Johns Hopkins University. Subsequently, he was appointed Research Associate by Yale University. At the time of his death he was engaged in a projected eight volume history of medicine of which he succeeded in completing only two volumes. His many inspired writings remain as a living tribute to the life and work of a dedicated humanist and historian and a great man.

Dr. Felix Martí-Ibañez has selected 27 historical essays and articles. These are grouped under the headings I: *On Medical History*; II: *Ancient and Medieval Medicine*; III: *Renaissance, Baroque, and Age of Enlightenment Medicine*; and IV: *Personal History*. This is a volume of great interest.

ON THE SOCIOLOGY OF MEDICINE,

Henry E. Sigerist, Edited by Milton I. Roemer, M.D. MD Publications, Inc., 30 East 60th Street, New York 22, 1960, 397 pp., \$6.75.

The report of Dr. Henry Sigerist to the Saskatchewan Health Services Survey Commission was made following a study in 1944 and is well known to Canadian students of public health administration. This is one of the reports included in this most interesting volume. Dr. Roemer has selected 31 essays from the period 1931 to 1955. The essays have been assembled mainly along geographical lines, since Dr. Sigerist considered the sociology of medicine to mean the social aspects of medical care in different countries. The essays are presented in five groups: Part I: *General Essays*; Part II: *Europe*; Part III: *America*; Part IV: *Other Lands*; Part V: *Special*

Topics. This contribution will be highly valued.

GERIATRIC NURSING, Kathleen Newton, R.N., M.A., Third Edition, The C.V. Mosby Co., St. Louis, Mo., 1960, 483 pp., \$6.50.

This book is planned primarily for those who nurse the aged, whether in home or in hospital, in private or the public agency. It is intended for either the student nurse or the graduate nurse. In preparing this book the author had the assistance of a number of members of the staff of the New York Hospital—Cornell Medical Center. The book is divided into three sections. The first considers some of the problems of the aged, beyond actual physical illness and is intended to give the nurse a background of understanding of the aged. The second section includes chapters on non-specific subjects that affect most elderly people—physical care, mental hygiene, nutrition, etc. The third deals with the more common clinical conditions.

The publication of the third edition indicates the response which this volume has received. It is a very helpful contribution.

ESSENTIALS OF HEALTHIER LIVING, Justus J. Schifferes, Ph.D., John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, 1960, 333 pp., \$5.50.

In 1954 the author published a volume entitled *Healthier Living* as a textbook for use in colleges and universities. The book contained 53 chapters. *Essentials of Healthier Living* is a complete new book and presents the subject in 19 chapters. The author conducted a careful interview survey of over 250 working college instructors in all parts of the United States to determine what was needed in a new college text on the subjects of personal and community health. From close association with and a wide knowledge of health education, the author has presented a short, stimulating book, thoroughly modern in format, with excellent illustrations. Unnecessary detail has been omitted and the book merits the title *Essentials of Healthier Living*.

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Reference:

Intravenous Heparin—Its role in the Management of Acute
Thromboembolic Diseases.

W. Ford Connell and George A. Mayer
Applied Therapeutics, May 1960, Vol. 2, No. 5, 371-375.

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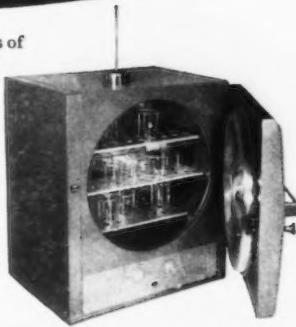
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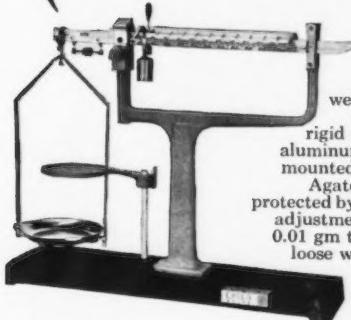


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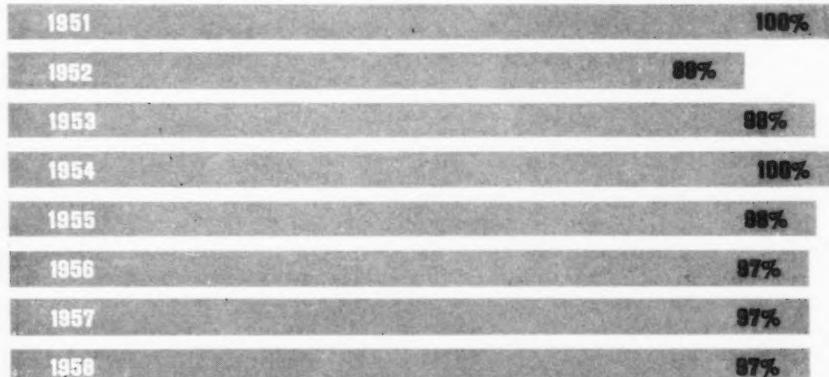
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References: (1) Rebhan, A. W., & Edwards, H. E.: *Canad. M. A. J.* 82:513, 1960. (2) Editorial Comments: *Canad. M. A. J.* 82:537, 1960. (3) Brownrigg, G. M.: *Canad. M. A. J.* 73:787, 1955. (4) Roy, T. E.; Collins, A. M.; Craig, G., & Duncan, I. B. R.: *Canad. M. A. J.* 77:844, 1957. (5) Royer, A., in Welch, H., & Marti-Ibañez, E.: *Antibiotics Annual 1957-1958*, New York, PARKE, DAVIS & COMPANY, LTD. Medical Encyclopedia, Inc., 1958, p. 783.

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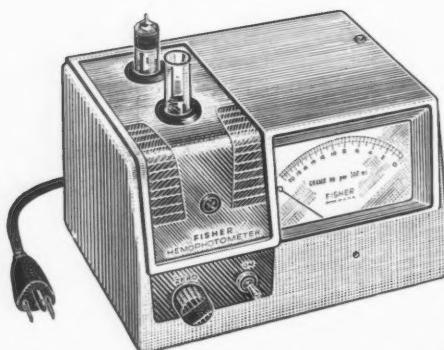
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